

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
15 May 2003 (15.05.2003)

PCT

(10) International Publication Number  
**WO 03/039496 A1**

(51) International Patent Classification<sup>7</sup>: **A61K 7/06, 7/48**

(21) International Application Number: **PCT/EP02/12369**

(22) International Filing Date:  
6 November 2002 (06.11.2002)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
TO2001A001053 7 November 2001 (07.11.2001) IT

(71) Applicant (for all designated States except US):  
**ZSCHIMMER & SCHWARZ ITALIANA S.P.A.**  
[IT/IT]; Via Vercelli 81, I-13038 Tricerro (IT).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **ARIOTTO, An-  
gelo** [IT/IT]; Via Provinciale 44, I-15030 Terruggia (IT).  
**GUALA, Fabrizio** [IT/IT]; Via G. Ferrari 6, I-13039  
Trino (IT). **MERLO, Elisabetta** [IT/IT]; Via G. Ferrari  
6, I-13039 Trino (IT). **VILLA, Giovanni** [IT/IT]; Via G.  
Battista Vico 10, I-20030 Paderno Dugnano (IT).

(74) Agents: **RAMBELLI, Paolo** et al.; Jacobacci & Partners  
SpA, Corso Regio Parco, 27, I-10152 Torino (IT).

(81) Designated States (national): AE, AG, AL, AM, AT, AU,  
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,  
CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,  
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,  
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,

MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG,  
SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ,  
VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM,  
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),  
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),  
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,  
ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK,  
TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,  
GW, ML, MR, NE, SN, TD, TG).

**Declarations under Rule 4.17:**

— as to applicant's entitlement to apply for and be granted  
a patent (Rule 4.17(ii)) for the following designations AE,  
AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH,  
CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI,  
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG,  
KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK,  
MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD,  
SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ,  
VC, VN, YU, ZA, ZM, ZW, ARIPO patent (GH, GM, KE, LS,  
MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent  
(AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent  
(AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB,  
GR, IE, IT, LU, MC, NL, PT, SE, SK, TR), OAPI patent (BF,  
BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN,  
TD, TG)

— of inventorship (Rule 4.17(iv)) for US only

**Published:**

— with international search report

For two-letter codes and other abbreviations, refer to the "Guid-  
ance Notes on Codes and Abbreviations" appearing at the begin-  
ning of each regular issue of the PCT Gazette.

(54) Title: **DETERGENT AND COSMETIC COMPOSITIONS COMPRISING CAPRYLOYL GLUTAMATE SALTS  
AND/ODER CAPRYLOYL HYDROLYSATE SALTS OF WHEAT AND/OR RICE PROTEIN**

(57) Abstract: The invention describes detergent or cosmetic compositions provided with, hydrating preserving properties and si-  
multaneously sebum regulating, anti-dandruff, and/or anti-odour properties. These compositions include a capryloyl glutamate salt  
and/or capryloyl hydrolysate of wheat and/or rice protein. Since the salt utilised is able also to provide a self-preserved and hy-  
drating effect, the compositions of the invention do not need any addition of further self-preserved or hydrating agents or, at most,  
contain concentrations thereof which are not efficient per se.

BEST AVAILABLE COPY

WO 03/039496 A1

DETERGENT AND COSMETIC COMPOSITIONS COMPRISING CAPRYLOYL GLUTAMATE SALTS AND/  
OR CAPRYLOYL HYDROLYSATE SALTS OF WHEAT AND/OR RICE PROTEIN

The present invention relates to a detergent or cosmetic composition provided with sebum regulating, anti-dandruff and/or anti-odour properties and simultaneously provided with hydrating and self-preservative properties.

In the formulation of cosmetic or detergent compositions with sebum regulating, anti-dandruff and/or anti-odour properties the use of derivatives of caprylic acid is known. However, the problem with the derivatives commonly utilised is often that of excessively delipidising the corneal layer of the skin by acting as a solvent of the functional lipids contained in it and simultaneously removing the water-soluble substances from it. All this causes excessive drying of the skin and fragility of the hair, which problems are commonly resolved by adding suitable hydrating agents to the formulations. In the formulation of cosmetic or detergent compositions in general it is moreover necessary to add self-preservative agents which have the function of preserving the composition from pollution by bacteria and other micro-organisms such as, for example, fungi and yeasts, which can be the cause of infections in man. However, the disadvantage associated with the use of self-preservative agents is that in order to be efficacious they must often be utilised at irritant concentrations or at concentrations at which they sensitise the tissue with which they come into contact.

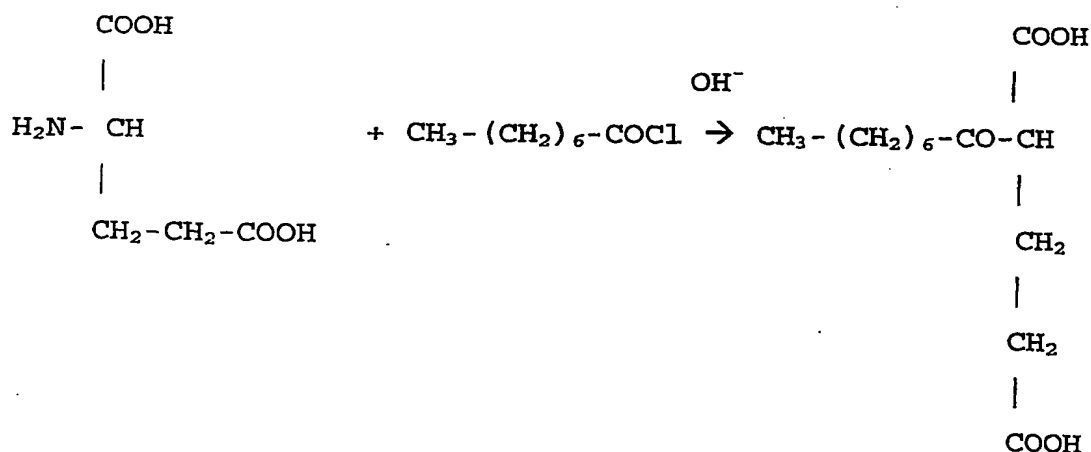
The present invention therefore has the object of providing a detergent or cosmetic composition provided with the above

indicated functional properties (that is to say, sebum regulating, anti-dandruff and/or anti-odour) which does not have the above-mentioned disadvantages.

This object has been achieved by the present inventors, who have identified various derivatives of caprylic acid which, when formulated in detergent or cosmetic compositions, are not only able to perform the sebum regulating, anti-dandruff and/or anti-odour activity, but are simultaneously able to confer on the said composition hydrating and self-preservative properties.

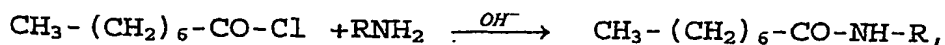
These derivatives are salts of capryloyl glutamate and capryloyl hydrolysate of rice and/or wheat protein.

The salts of capryloyl glutamate can be obtained by the Schotten-Baumann reaction by making the amino group of the glutamic acid react with capryloyl chloride in a basic environment, according to the following reaction:



In the same way the salts of capryloyl hydrolysate can be obtained by means of the Schotten-Baumann reaction by making the amino group present in the hydrolysate react with

capryloyl chloride in a basic environment according to the following reaction:



Wherein R is the peptide residue obtainable by means of hydrolysis of wheat and/or rice proteins.

This peptide residue (or hydrolysate) is obtained by acid hydrolysis (with HCl) of gluten (wheat) and/or husks (rice) and subsequent filtration to separate the product obtained from the dregs.

As an alternative to chemical hydrolysis, an enzymatic hydrolysis can also be used, by exploiting the amylase and protease enzymes.

The product obtained from hydrolysis is a mixture of peptides having a molecular weight between 1000 and 4000 Dalton. In the ambit of the present specification this product will sometimes be indicated as "peptide residue" and other times as "hydrolysate of wheat and/or rice protein".

During the Schotten-Baumann reaction the dissociated carboxylic groups present are neutralised by salification with a base chosen in dependence on the desired salt, for example NaOH or KOH. Alternatively, to obtain salts of a weak base such as TEA the sodium or potassium salt is brought to a pH of 2.0-3.0 with phosphoric acid to obtain the acid form and subsequently dissolved in water and neutralised with the desired base.

In the above-described salts the dissociated carboxylic groups are preferably neutralised with cations chosen from groups which consist of: cations belonging to the groups of alkaline metals or other monovalent cations such as  $\text{Cu}^+$ ; cations belonging to the groups of alkaline earth metals or other bivalent cations such as  $\text{Pb}^{2+}$ ; trivalent cations such as  $\text{Al}^{3+}$ ; polyvalent cations such as  $\text{Sn}^{4+}$ ;  $\text{NH}_4^+$  or amine bases chosen from triethanol amine, monoethanol amine, diethanol amine, monoisopropanol amine, tri-isopropanol amine, 2-amino butanol, amino ethylpropanediol, arginine, lysine, ornithine, amino methyl propanol, amino methyl propanediol and 2-amino-2-hydroxymethyl-1,3-propanediol. Such neutralising cations can also be utilised in combination with one another.

A subject of the invention is therefore the use of a salt of capryloyl glutamate and/or capryloyl hydrolysate of wheat and/or rice proteins as self-preservative and hydrating agents and simultaneously sebum regulating, anti-dandruff and/or anti-odour agents in the formulation of a detergent or cosmetic composition free from other self-preservative agents and other hydrating agents, or including other self-preservative and/or hydrating agents at a non-efficacious concentration and/or insufficient to confer the desired characteristics of self-preservative and/or hydration in an analogous or similar composition free of the said compounds (composition).

Another subject of the invention is a detergent or cosmetic composition provided with hydrating and self-preservative properties and simultaneously sebum regulating, anti-dandruff and/or anti-odour properties, such sebum regulating, anti-dandruff and/or anti-odour agents including a composition which is a salt of capryloyl glutamate and/or of capryloyl

hydrolysate of wheat and/or rice protein, the said salt further having self-preservative and hydrating effect, the said composition therefore being free from other self-preservative agents and other hydrating agents, or including other self-preservative and/or hydrating agents at non-efficacious concentrations and/or insufficient to confer the desired self-preservative and/or hydration characteristics to an analogous or similar composition free from the said salt.

The expression "analogous or similar composition free from the said salt" is intended to indicate a composition constituted by the same components in the same quantities as the composition of the invention, but which is differentiated from it by the fact that the capryloyl glutamate salt and/or capryloyl hydrolysate salt of wheat and/or rice proteins is replaced by an equal quantity of other anionic surfactant agent.

In general it can be understood that a detergent or cosmetic composition has the desired self-preservative characteristic when it responds positively to the tests for evaluation of the efficacy of the preserving power. Such tests are conducted according to the indications provided by the United States Pharmacopœia (USP) and/or by the Cosmetic, Toiletry and Fragrance Association (CTFA). These methods, and other similar methods, involve the inoculation of the samples with micro-organisms of different types and counting the aerobic microbes of these at different times to evaluate the survival level.

The self-preservative efficacy of the salts utilised in the present invention has been confirmed by means of challenge tests conducted on aqueous solutions of capryloyl glutamate

in the form of sodium salt, inoculated with mixed inoculants (see example 1).

The tests, as well as confirming the self-preservative efficacy of the composition, also demonstrated that it increases with the reduction of pH. Consequently, it is preferred that the cosmetic or detergent composition according to the invention has a pH less than or equal to 5, more preferably a pH in the range from 3.5 to 5.0.

The use of the above-indicated salts in the formulation of detergent or cosmetic compositions thus makes it possible to eliminate or in any event substantially reduce the concentration of the usual self-preservative agents the concentration of which, if present, will nevertheless be less than the threshold of irritant and/or sensitising activity.

Among the self-preservative agents commonly utilised in detergent or cosmetic compositions of the prior art, but absent from the composition according to the invention, or at most present in non-irritant or non-self-preservative concentrations are, for example, formaldehyde, chlorine, hypochlorite, compounds which release chlorine, chlorine dioxide, iodine and iodofers, phenol, cresol, chlorocresol, amphoteric compounds with self-preservative characteristics, chlorhexidine, peracetic acid and dihydroacetic acid, mercury compounds, alcohols, sorbic acid, benzoic acid, salicylic acid, boric acid, formic acid, crotonic acid and salts derived from the use, bronopol, 5-bromo-5-nitrodioxane, hexamethylene tetramine, DMDM idantoine, various inantoines such as MDM idantoine, chloracetamide, ureas such as imidazolidinyl urea and diazolidinyl urea, inorganic sulphites, triclosane, parabenes, isothiazolinones, usnic

acid and its salts, chlorophene, hexachlorophene, dichlorophene, bromochlorophene, trichlorocarbon, chlorofluorocarbon, benzamidines classified as self-preservatives, amines classified as self-preservatives, dimethyloxazolidine, ethylbicyclohexazolidine, dimethylhydroxymethylpyrazole, polyaminopropylbiguanide, sodium hydroxy-methylglycinate, methyldibromoglutaronitrile, glyceryl monolaurate and their mixtures.

The non-irritant or non-self-preservative concentration varies in dependence on the compound considered, and can be easily determined by the man skilled in the art since the above-listed compounds are all known and usually utilised in cosmetics as self-preservatives.

In general it can be understood that a detergent or cosmetic composition has the desired hydrating characteristics when it is capable of obviating the symptoms and manifestations of dry skin and hair (according to the definition of "hydrating compounds" in "A Short Textbook of Cosmetology", K.F. De Polo, first edition 1998).

The salts utilised in the present invention have such hydrating properties.

The molecules of capryloyl glutamate and capryloyl hydrolysate, once they come into contact with the skin, in fact separate into glutamates and hydrolysate on the one hand and fatty acid on the other.

Both wheat and rice hydrolysate protein and glutamic acid have hydrating properties.



In fact, the protein hydrolysate, in contact with the skin, forms a continuous protective layer over the corneal layer thereof, protecting it from external aggressions and increasing the hydration by reduction of TEWL (Trans Epidermal Water Loss). Moreover such protein hydrolysates are sources of amino acid, which constitutes 40% of the natural moisturising factor (NMF). The glutamic acid on the other hand enters into a series of biological cycles contributing to the correct hydration of the skin and to maintenance of the natural cutaneous acidity thanks to the two to carboxylic groups. In fact, it constitutes 15% of the keratins and forms part of the  $\epsilon$  ( $\gamma$ -glutamyl) lysine bond present in the in involucrin and keratolin proteins which constitute the cellular membrane of the corneal layer. It can be transformed into PCA, one of the components of the NMF, that is to say a set of water soluble substances responsible for the correct hydration, as well as into proline and hydroxyproline (these two amino acids are fundamental for the synthesis of collagen and elastine). The acylglutamates, moreover, act as selective solvents for the principal component of the sebum, i.e., squalene, therefore leaving unaltered the functional lipids of the corneal layer which control the hydration.

The caprylic acid component on the other hand performs its particular action of controlling the increase of pathogenic micro-organisms, dandruff, body odours, the production of sebum and cutaneous disorders.

The use of salts of capryloyl glutamate and/or capryloyl hydrolysate of wheat and/or rice protein in the formulation of the detergent or cosmetic compositions according to the invention thus make it possible to eliminate or in any event

substantially reduce the addition of hydrating factors, emollients or palliatives for the skin, concentrations of which, if present, will nevertheless be less than the efficacious threshold for hydrating activity.

Among the hydrating agents commonly utilised in detergent or cosmetic compositions of the prior art, but absent from the compositions according to the invention, or at most present in non-efficacious concentrations, are, for example, glycerine, sorbitol, propyleneglycol, polyethylene glycol with molecular weight from 200 to 600, Sorbeth-30, urea, lactic acid and its salts, mucopolysaccharides such as ialuronic acid and chondroitin sulphate, orotic acid, lanolin, petrolatum, mineral oils, occlusive substances which hydrate the skin by preventing the evaporation of water, and their mixtures.

The concentration which is not efficacious for hydration varies in dependence on the compound considered, and can be easily determined by the man skilled in the art since the above-listed compounds are all known and commonly utilised in cosmetics as hydratants.

The detergent or cosmetic compositions according to the invention preferably include an aqueous medium, although the salts utilised can equally well be used in emulsions.

The total concentration of salts of capryloyl glutamate and/or capryloyl hydrolysate of wheat and/or rice protein in the compositions according to the invention is preferably one which is sufficient in itself to confer the desired self-preservative characteristics and hydrating action, that is such as to confer the said characteristics in combination

with other self-preservative and/or hydrating agents present in concentrations which are not sufficient per se to confer such characteristics.

This concentration lies preferably between 0.5% and 25% by weight of active substance with respect to the total composition, more preferably between 1.5% and 15% by weight of active substance. In this range of concentration, in fact, the salts present are able correctly to perform all their functions.

The detergent or cosmetic compositions according to the invention can include at least one further and separate surfactant agent chosen from anionic surfactants such as, for example, salts of alkyl sulphates and alkyl ether sulphates (for example sodium, magnesium, TEA, MEA and ammonia salts), salts of amide/amide ether sulphates, salts of alkyl semisulphosuccinates and alkyl sulphosuccinates, salts of alkyl ether semisulphosuccinates and alkyl ether sulphosuccinates, salts of acyl amide semisulphosuccinates and of acyl amide sulphosuccinates, salts of dodecyl benzene sulphonic acid, salts of alkyl/alkyl ether sulphoacetates, salts of sulphonated and/or sulphated organic molecules (for example,  $\alpha$ -olefin sulphonates), salts of alkyl/alkyl ether carboxylates, alkyl phosphonates, esters of phosphoric acid, salts of acyl septionates; amphoteric surfactants, such as, for example, alkyl betaine, alkyl amidopropylbetaine, oxides of amine and of amides, amphocarboxyacetates and amphocarboxydiacetates, amphocarboxypropionates and amphocarboxydipropionates; non-ionic surfactants such as, for example, various amides, ethoxylated and non-ethoxylated fatty amines, ethoxylated nonylphenol, APG (alkyl polyglucosides), AEG (alkyl ethoxyglucosides), esters/ethers

of fatty acids with glycerol and/or ethoxylated and non-ethoxylated sugars, various ethoxylated/propoxylated and non-ethoxylated/propoxylated esters, ethoxylated/propoxylated and non-ethoxylated/propoxylated fatty alcohols, silicone molecules; cationic surfactants containing, for example, at least one atom of quaternary nitrogen.

Some products in which the compositions of the inventions can be used are: shampoo, foam baths, foam showers, washing up liquid, liquid soaps, solid soaps, lotions, emulsions of various types, balsams, products having simultaneous detergent and conditioning effects on the skin and/or hair, oils, emollient and detergent milks, face cream and/or body cream and/or hair cream, detergents for intimate hygiene, brilliantine, permanent wave solutions, hair colouring, dentifrice, medicated cosmetics and pharmaceutical products.

The examples which follow are provided solely for the purpose of illustration and or not intended to limit in any way the scope of the invention.

#### EXAMPLES

##### Example 1: test on the self-preservative efficacy

To evaluate the self-preservative efficacy of sodium salts of capryloyl glutamate a challenge test was conducted on a cosmetic composition comprising:

Sodium lauryl ether sulphate 20E (27% a.m.) = 37%

Cocoamidopropyl betaine (30% a.m.) = 5%

Sodium capryloyl glutamate (about 1.5% a.m.) = 5%

Water = to 100%

pH = 5.

Four mixed inoculations illustrated in the following table 1 (gram+ bacteria; gram- bacteria; yeasts; filamentary fungi) were prepared and each of these was inoculated with a specimen of the above-indicated composition.

Table 1

GRAM+ BACTERIA:	$1 \times 10^7$	Staphylococcus aureas ATCC6538 Staphylococcusepidermidis ATCC 12228
GRAM- BACTERIA:	$1 \times 10^7$	Eschericha coli ATCC 8739 Pseudomonas aeruginosa ATCC 9027 Enterobacter cloacae ATCC 13047 Pseudomonas putida (from cosmetics)
YEASTS:	$1 \times 10^7$	Candida albicans ATCC 10231 Saccharomyces cerevisiae ATCC 9763
FILAMENTARY FUNGI:	$1 \times 10^5$	Aspergillus niger ATCC 16404 Penicillium funiculosum ATCC 9644

The challenge test consists in monitoring the survival of the inoculants over time; this survival is indicative of the self-preservative capacity of the cosmetic product during the period of use by the consumer.

In particular, survival of the inoculants was checked after 24 hours, seven days and 28 days from the inoculation. Monitoring at 24 hours represents a datum for the purpose of evaluating the rapidity of the self-preservative system, that at 7 days indicates on the other hand the degree of risk of pollution of the product, whilst the test at 28 days, as well as representing confirmation of the previously obtained data, makes it possible to show up the possible formation of resistant strains.

The results obtained are illustrated in the following Table 2.

Table 2

Values obtained in the survival tests of the inoculations expressed in colony forming units per gram of product (c.f.u./g)

Survival	Gram + (c.f.u./g)	Gram - (c.f.u./g)	Filamentary Fungi (c.f.u./g)	Yeasts (c.f.u./g)
24 hours	<10	10 <sup>2</sup>	<10	10 <sup>2</sup>
7 days	<10	<10	<10	<10
28 days	<10	<10	<10	<10

By successive dilutions the minimum inhibiting concentration (MIC) of an aqueous solution at pH 5 of sodium capryloyl glutamate against some micro-organisms involved in the etiology of dandruff and some skin and related diseases was calculated. The results obtained are shown in the following Table 3.

Table 3

MICRO-ORGANISM	MIC (%)
Pytyrosporum ovale <sup>a</sup>	4.5%
Staphylococcus aureas <sup>b</sup>	1.5%
Staphylococcus epidermidis <sup>b</sup>	6.0%
Propionibactrium acnes <sup>b</sup>	5.5%
Pseudomonas aeruginosa <sup>c</sup>	1.5%

- <sup>a</sup> agent involved in the etiology of dandruff and in many skin disorders
- <sup>b</sup> agent involved in the etiology of acne
- <sup>c</sup> agent which determines pathological events above all in individuals with compromised immune defences; it is one of the principal protagonists of hospital infections.

Example 2: Hydrating Face Cleaner without self-preservedatives

Sodium capryloyl glutamate (30% active material): 6%  
Sodium cocoamphodiacetate (26% active material): 10%  
Sodium lauryl sulphoacetate (65% active material): 1.5%  
PEG-7 glyceril cocoate: 2%  
Citric acid: as required to pH 5.0  
NaCl: as needed  
Colour and perfume: as needed  
Water: to 100%

Example 3: sebum regulating face gel

Sodium capryloyl hydrolysate of rice protein (30% active material): 9%  
Laurylmidopropyl betaine (30% active material): 20%  
Sodium cocoamphodiacetate (26% active material): 3%  
Cocoamidopropylaminooxide (30% active material): 10%  
Citric acid: as needed to pH 5.0  
NaCl, colour, perfume and water: to 100%

Example 4: sports shower gel with deodorant effect

Potassium capryloyl hydrolysate of wheat protein (30% active material): 6%  
Laurylethoxysulphate of magnesium ethoxylate 2 moles (25% active material): 15%  
Laurylamidopropyl betaine (30% active material): 20%  
PEG-7 glyceryl coccoate: 1%

Citric acid: as required to pH 4.5

NaCl, colour, perfume and water: to 100%

Example 5: intimate detergent

Salts of triethanolamine capryloyl hydrolysate of wheat protein (30% active material): 7%

Sodium capryloyl glutamate (30% active material): 3%

Laurylethoxysulphate of magnesium ethoxylate 2 moles (25% active material): 10%

Cocoamidopropyl betaine (30% active material): 6%

Disodiumlaurylethoxysemisulphosuccinate (30% active material): 4%

Citric acid: as need to pH 3.5 to 4.0

NaCl, colour, perfume and water: to 100%

Example 6: anti-dandruff shampoo

Sodium capryloyl glutamate (30% active material): 10%

Laurylethoxysulphate of sodium ethoxylate 3 moles (27% active material): 35%

Laurylamidopropyl betaine (30% active material): 5%

Laurylsulphate of ammonia (26% active material): 9%

DEA coccoamide (100% active material): 1%

Citric acid: as needed to pH 4.5

NaCl, colour, perfume and water: to 100%

Example 7:

Potassium capryloyl hydrolysate of rice protein (30% active material): 5%

Laurylethoxysulphate of sodium ethoxylate 3 moles (27% active material): 30%

Potassium capryloyl glutamate (30% active material): 3%

Laurylsulphate of tri-ethanol amine (39% active material): 6%

Citric acid: as needed to pH 4.2



NaCl, colour, perfume and water: to 100%

Example 8: antidandruff shampoo

Potassium capryloyl glutamate (30% active material): 8%

Laurylamidopropyl betaine (30% active material): 10%

Laurylethoxysulphate of sodium ethoxylate 3 moles (27% active material): 10%

Sodium lauryl sulphoacetate (65% active material): 1%

Lauryl sulphate of ammonia (26% active material): 10%

Citric acid: as needed to pH 5.0

NaCl, colour, perfume and water: to 100%

Example 8: hand wash

Sodium capryloyl hydrolysate of wheat protein (30% active material): 8%

Ethoxylated sodium lauryl ethoxysulphate 2 mole (27% active material): 20%

Coccoamidopropylbetaine (30% active material): 4%

Citric acid: as needed to pH 4.0

NaCl, colour, perfume and water: to 100%

CLAIMS

1. A detergent or cosmetic composition provided with hydrating and self-preservative properties and simultaneously sebum regulating, anti-dandruff and/or anti-odour properties, comprising as sebum regulating, anti-dandruff and/or anti-odour agent a salt of capryloyl glutamate and/or capryloyl hydrolysate of wheat and/or rice proteins, the said salts also having self-preservative and hydrating effects, the said composition thereby being free from other self-preservative agents and other hydrating agents, or comprising other self-preservative and/or hydrating agents in a non-efficacious and/or insufficient concentration to confer the desired self-preservative and/or hydration characteristics in an analogous or similar composition free from the said salts.

2. The composition according to Claim 1, wherein the said salt is selected from the group consisting of: salts with alkaline metal cations or other monovalent cations such as  $\text{Cu}^+$ ; salts with alkaline earth metal cations or other bivalent cations such as  $\text{Pb}^{2+}$ ; salts with trivalent cations such as  $\text{Al}^{3+}$ ; salts with polyvalent cations such as  $\text{Sn}^{4+}$ ; salts with  $\text{NH}_4^+$  or with an amino base selected from tri-ethanol amine, monethanol amine, diethanol amine, monoisopropanol amine, tri-isopropanol amine, 2-amino butanol, amino ethyl propanediol, arginine, lysine, ornithine, amino methyl propanol, amino methyl propanediol, 2-amino-2-hydroxymethyl-1,3-propanediol; and their combinations.

3. The composition according to Claim 1 or 2 further including an aqueous medium.

4. The composition according to any of Claims 1 to 3, having a pH value less than or equal to 5.

5. The composition according to any of Claims 1 to 4, wherein the said further hydrating agent is selected from the group consisting of: glycerine, sorbitol, propylene glycol, polyethylene glycol with molecular weight from 200 to 600, Sorbeth-30, urea, lactic acid and its salts, mucopolysaccharides such as ialuronic acid and chondroitin sulphate, orotic acid, lanolin, petrolatum, mineral oils, occlusive substances which hydrate the skin by preventing the evaporation of water, and their mixtures.

6. The composition according to any of Claims 1 to 5, wherein the said further self-preservative agent is selected from the group consisting of: formaldehyde, chloride, hypochlorite, compounds releasing chlorine, bioxide of chlorine, iodine and iodophers, phenol, cresol, chlorocresol, amphoteric compounds with self-preservative characteristics, chlorhexidine, peracetic acid and dihydroacetic acid, compounds of mercury, alcohols, sorbic acid, benzoic acid, salicylic acid, boric acid, formic acid, propionic acid and salts derived from these, bronopol, 5-bromo-5-nitrodioxane, hexamethylene tetramine, DMDM idantoine, various idantoines such as MDM idantoine, chloracetamide, ureas such as imidazolidinyl urea and diazodinyl urea, inorganic sulphites, trichlosane, parabenes, isothiazolinones, usnic acid and its salts, chlorophene, hexachlorophene, dichlorophene, bromochlorophene, trichlorocarbon, chlorofluorocarbon, benzamidines classified as self-preservatives, amines classified as self-preservatives, dimethyloxazolidine, ethylbicycloxazolidine, dimethyl hydroxymethyl pirazol, polyaminopropyl biguanide, sodium hydroxymethylglycinate,

methyldibromoglutaronitrile, glyceryl monolaurate and their mixtures.

7. The composition according to any of Claims 1 to 6, including a further and separate surfactant agent selected from anionic, cationic, non-ionic, amphoteric surfactants and their mixtures.

8. The composition according to Claim 7, wherein the said further and separate surfactant agent is selected from sodium laurylsulphate, sodium laurylethoxysulphate and their mixtures.

9. The composition according to any of Claims 1 to 8, wherein the concentration of the said salt is in the range from 0.5 to 25% by weight of active material with respect to the total weight of the composition.

10. The composition according to Claim 9, in which the said concentration is in the range of 1.5 to 15% by weight of active material.

11. Use of capryloyl glutamate and/or capryloyl hydrolysate salts of wheat and/or rice proteins as self-preservative and hydrating agents and simultaneously as sebum regulating, anti-dandruff and/or anti-odour agents in the formulation of a detergent or cosmetic composition as defined in any of Claims 1 to 10.



## INTERNATIONAL SEARCH REPORT

Interna plication No  
PCT/EP 02/12369

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	FR 2 760 746 A (PHYTOCOS LAB) 18 September 1998 (1998-09-18) claims; examples page 1, line 1 - line 18 page 3, line 32 -page 4, line 18 ----	1-11
X	PATENT ABSTRACTS OF JAPAN vol. 017, no. 017 (C-1016), 13 January 1993 (1993-01-13) & JP 04 243809 A (KANEBO LTD), 31 August 1992 (1992-08-31) abstract ----	1-11
X	PATENT ABSTRACTS OF JAPAN vol. 016, no. 128 (C-0924), 2 April 1992 (1992-04-02) & JP 03 294298 A (SEIWA KASEI:KK), 25 December 1991 (1991-12-25) abstract ----	1-11
X	EP 1 074 247 A (ZSCHIMMER & SCHWARZ ITALIANA S) 7 February 2001 (2001-02-07) examples 10,15 paragraph '0023! ----	1-11
X	US 5 458 881 A (GACON PAUL ET AL) 17 October 1995 (1995-10-17) claims; examples column 1, line 23 - line 26 -----	1-11

## INTERNATIONAL SEARCH REPORT

Internationa plication No

PCT/EP 02/12369

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 0199376	A	27-12-2001	DE 10137901 A1 AU 9554001 A WO 0199376 A2	05-12-2002 02-01-2002 27-12-2001
WO 02062304	A	15-08-2002	DE 10102009 A1 WO 02062304 A2	01-08-2002 15-08-2002
WO 02056840	A	25-07-2002	DE 10102007 A1 WO 02056840 A2 NO 20020079 A	10-10-2002 25-07-2002 19-07-2002
FR 2760746	A	18-09-1998	FR 2760746 A1	18-09-1998
JP 04243809	A	31-08-1992	JP 2902792 B2	07-06-1999
JP 03294298	A	25-12-1991	NONE	
EP 1074247	A	07-02-2001	IT T0990639 A1 EP 1074247 A2	22-01-2001 07-02-2001
US 5458881	A	17-10-1995	FR 2676922 A1 AT 115851 T CA 2110593 A1 DE 69200959 D1 DE 69200959 T2 EP 0586501 A1 ES 2065780 T3 WO 9221318 A1 JP 2705848 B2 JP 7502010 T	04-12-1992 15-01-1995 10-12-1992 02-02-1995 11-05-1995 16-03-1994 16-02-1995 10-12-1992 28-01-1998 02-03-1995

CORRECTED VERSION

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
15 May 2003 (15.05.2003)

PCT

(10) International Publication Number  
WO 03/039496 A1

(51) International Patent Classification<sup>7</sup>: A61K 7/06, 7/48

(21) International Application Number: PCT/EP02/12369

(22) International Filing Date:  
6 November 2002 (06.11.2002)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
IT02001A001053 7 November 2001 (07.11.2001) IT

(71) Applicant (for all designated States except US):  
ZSCHIMMER & SCHWARZ ITALIANA S.P.A.  
[IT/IT]; Via Vercelli 81, I-13038 Tricerro (IT).

(72) Inventors; and

(75) Inventors/Applicants (for US only): ARIOTTO, Angelo [IT/IT]; Via Provinciale 44, I-15030 Terruggia (IT). GUALA, Fabrizio [IT/IT]; Via G. Ferrari 6, I-13039 Trino (IT). MERLO, Elisabetta [IT/IT]; Via G. Ferrari 6, I-13039 Trino (IT). VILLA, Giovanni [IT/IT]; Via G. Battista Vico 10, I-20030 Paderno Dugnano (IT).

(74) Agents: RAMBELLI, Paolo et al.; Jacobacci & Partners SpA, Corso Regio Parco, 27, I-10152 Torino (IT).

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)
- of inventorship (Rule 4.17(iv)) for US only

Published:

- with international search report

(48) Date of publication of this corrected version:

7 August 2003

(15) Information about Correction:

see PCT Gazette No. 32/2003 of 7 August 2003, Section II

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: DETERGENT AND COSMETIC COMPOSITIONS COMPRISING CAPRYLOYL GLUTAMATE SALTS AND/OR CAPRYLOYL HYDROLYSATE SALTS OF WHEAT AND/OR RICE PROTEIN

(57) Abstract: The invention describes detergent or cosmetic compositions provided with, hydrating preserving properties and simultaneously sebum regulating, anti-dandruff, and/or anti-odour properties. These compositions include a capryloyl glutamate salt and/or capryloyl hydrolysate of wheat and/or rice protein. Since the salt utilised is able also to provide a self-preserved and hydrating effect, the compositions of the invention do not need any addition of further self-preserved or hydrating agents or, at most, contain concentrations thereof which are not efficient per se.

WO 03/039496 A1



**This Page is Inserted by IFW Indexing and Scanning  
Operations and is not part of the Official Record**

**BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ BLACK BORDERS
- ☐ IMAGE CUT OFF AT TOP, BOTTOM OR SIDES
- ☒ FADED TEXT OR DRAWING
- ☒ BLURRED OR ILLEGIBLE TEXT OR DRAWING
- ☐ SKEWED/SLANTED IMAGES
- ☐ COLOR OR BLACK AND WHITE PHOTOGRAPHS
- ☐ GRAY SCALE DOCUMENTS
- ☒ LINES OR MARKS ON ORIGINAL DOCUMENT
- ☒ REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY
- ☐ OTHER: \_\_\_\_\_

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.**